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PAGE 03/10

DEC 11 2006

Atty. Docket No.: Q86241  
PATENT APPLICATION

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No.: 10/521,178

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

**LISTING OF CLAIMS:**

1. (*Withdrawn*) An apparatus for processing a screw rotor, comprising a bed; a C-axis shaft supporter disposed on the bed; a C-axis shaft held by the C-axis shaft supporter, for rotating a cylindrical workpiece; a column disposed on the bed; a blade holder rotatably held by the column; and a tool attached to the blade holder,

wherein the apparatus further comprises a special shaft and an workpiece-attaching member, the special shaft being connected to the C-axis shaft and rotating in synchronism with the C-axis shaft, the workpiece-attaching member being connected to the special shaft and rotating in synchronism with the special shaft.

2. (*Withdrawn*) The apparatus according to claim 1, further comprising a shake stopper disposed on the bed, the shake stopper supporting the special shaft.

3. (*Withdrawn*) The apparatus according to claim 1, further comprising an automatic measuring system for measuring the width of a processed screw groove.

4. (*Currently Amended*) A method for processing a screw rotor comprising a step of rotating a blade holder while shifting the blade holder in X-axis, Y-axis, and Z-axis directions to form a screw groove on the outer surface of a rotating cylindrical workpiece with a tool, using a

Atty. Docket No.: Q86241  
**PATENT APPLICATION**

AMENDMENT UNDER 37 C.F.R. § 1.111

U.S. Application No.: 10/521,178

processing apparatus comprising a bed; a C-axis shaft supporter disposed on the bed; a C-axis shaft held by the C-axis shaft supporter, for rotating the cylindrical workpiece; a column disposed on the bed; the blade holder rotatably held by the column; and the tool attached to the blade holder[.].

in which said step to form a screw groove includes a first step of roughly cutting the groove on the outer surface of the workpiece using a tool having an end mill and a round end mill, and a second step of shaving the left, right and bottom surfaces of the groove, wherein a shaving bit having two blades set at different angles is used for shaving the left surface and right surface, respectively, and a round bit is used for shaving the bottom surface.

5. (*Canceled*)

6. (*Canceled*)

7. (*Canceled*)

8. (*Currently Amended*) The method according to claim [[5]]4, wherein shaving is performed in one direction in the second step.

9. (*Currently Amended*) The method according to claim [[5]]4, wherein shaving is performed in a reciprocating manner in the second step.

Atty. Docket No.: Q86241  
**PATENT APPLICATION**

## AMENDMENT UNDER 37 C.F.R. § 1.111

U.S. Application No.: 10/521,178

10. (*Original*) The method according to claim 4, wherein the method includes a measuring process to automatically measure the width of the processed groove during or at the completion of the process.

11. (*Withdrawn*) A shaving bit for the side surface of a groove, wherein replaceable blades are disposed at right and left edges of the shaving bit, wherein the blades each have a rake angle of about 20° with respect to a surface adjacent to a flank.

12. (*Withdrawn*) A shaving bit for the side surface of a groove, wherein replaceable blades are symmetrically disposed at right and left edges of the shaving bit, wherein the blades each have a rake angle of about 20° at a flank.

13. (*Withdrawn*) A round bit for the bottom of a groove wherein a replaceable throw-away-chip blade is fixed with a clamping bolt.

14. (*New*) The method according to claim 4, wherein shaving the side surfaces comprises utilizing a shaving bit having replaceable blades that are disposed at right and left edges of the shaving bit, wherein the blades each have a rake angle of about 20° with respect to a surface adjacent to a flank.

15. (*New*) The method according to claim 4, wherein shaving the side surfaces comprises utilizing a shaving bit having replaceable blades that are symmetrically disposed at right and left edges of the shaving bit, wherein the blades each have a rake angle of about 20° at a flank.

Atty. Docket No.: Q86241  
**PATENT APPLICATION**

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No.: 10/521,178

16. (New) The method according to claim 6, wherein the sub-step of rounding the bottom of the groove comprises utilizing a round bit having a replaceable throw-away-chip blade fixed with a clamping bolt.